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17. ABSTRACT (MAX. 250 WORDS)

A bibliography of research studies on kindergarten education reported between 1923 and 1964 is divided into four annotated sections. The first listing deals with values in kindergarten education: as a factor in adjustment, achievement, and progress in elementary school; as a factor in reading achievement and in prediction of reading success. Considered in the second group are entrance age and class size as factors in kindergarten education. Research on beginning reading with implication for kindergarten education is reviewed next and is subdivided into the age of beginning reading, reading activities, and such reading factors as experience and informational background, mental age, readiness, and visual development. The final section contains relevant recent research on intellectual development and learning. The material is reported in professional journals or in government publications and is annotated.

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# RESEARCH STUDIES ON KINDERGARTEN EDUCATION

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education

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Bureau of Child Development and Parent Education
The Division of School Supervision

1964

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THE UNIVERSITY OF THE STATE OF NEW YORK
The State Education Department
The Division of School Supervision
Bureau of Child Development and Parent Education
73 Albany 1964
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# RESEARCH STUDIES ON KINDERGARTEN EDUCATION

This listing of research related to kindergarten education attempts to include reports of the available studies of the last fifty years. It is not selective in terms of evaluation of the validity of the research technique or the reliability of the findings. Other more comprehensive research studies in the area of child development have not been included here because of space consideration.

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# RESEARCH STUDIES ON KINDERGARTEN EDUCATION

## I. VALUES IN KINDERGARTEN EDUCATION

### A. As Factor in Adjustment, Achievement, Progress in Elementary School

Bergamini, Yolanda & Swanson, Walter — "Does Kindergarten Make a Difference?", Sch. Ex. 74:54-55, '54

Comparison of kindergarten-trained and non-kindergarten-trained children at first grade level.
Findings: Kindergarten-trained children had higher scores in number work, copying and language usage; lower scores in word-meaning and comprehension of language.

Bonney, Marle E. & Nicholson, Ertie Lou — "Comparative Social Adjustment of Elementary School Pupils With and Without Preschool Training", Child Develop. 29:125-33, Mar. '58

Study of four public school sixth-grade classes, using sociometric choices and teacher ratings; comparison of the group who had attended kindergarten or nursery school with those who had not.
Findings: No significant difference between the two groups.

Haley, Elizabeth D.; Dolan, Ann E.; Katz, Mildred; Mackin, Marjorie A. — "A Comparison of Scores of Kindergarten Children and Non-Kindergarten Children in Specific Background Abilities at First-Grade Entrance", Unpublished Ed. M. Thesis, Boston Univ. '57. Reported in Research in Reading at the Primary Level, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '63

Study involving 936 first-grade pupils, 628 having had kindergarten training, 308 not. Specific abilities studied: motor coordination as related to letter writing; auditory and visual perception of letters, knowledge of letter names and sounds. Relationship of these abilities to increased learning rate was also considered.
Findings: Kindergarten-trained children showed superiority in: capitals matched and named, letters written, capitals named individually, lower case named and sounded individually, auditory discrimination, lower case shown, learning rate, and mental age factors.
72.98 percent of kindergarten children and 59.62 percent of non-kindergarten children could write their names.

McLatchy, Josephine N. "Attendance at Kindergarten and Progress in Primary Grades", Monograph No. 8, Columbus, Ohio: Bureau of Ed. Res., Ohio State Univ. Press, '28

Study using "rather incomplete records of promotion" through primary grades.
Findings: A decided superiority in the percentage receiving regular promotion fell to the group attending kindergarten.

McHugh, Loretta M. "The Effectiveness of a Planned Kindergarten Curriculum on Primary Grade Achievement", Unpublished Ed.D. Thesis, Boston Univ., '59. Reported in Research in Reading at the Primary Level, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '63

Study involved 709 children who had attended kindergarten and 620 who had not; period of four years covered. Test data were analysed to determine effect of planned kindergarten curriculum on scholastic achievement.
Findings: (1) Successful achievement in the primary grades was significantly affected by planned experiences in reading readiness, number concepts, science, social studies and in developing motor skills. (2) The verbal abilities, quantitative reasoning, and phonetic ability of the kindergarten group were superior to that of the non-kindergarten group. (3) In the third grade the kindergarten group was markedly superior in total achievement and seemed to have made a more satisfactory school adjustment.

Meyers, Vest C. "Is It Worthwhile to Send Your Child to Kindergarten?", Ed. Method 15:388-89, '63

Study of grades and ratings of 88 first grade children: 44 had attended kindergarten, 44 had not. No attempt to equate groups for intelligence, age, home backgrounds, physical conditions. Grade comparison made in reading, numbers, spelling, writing, music, language and social science. Comparison also made in social attitudes and health habits, play and games behavior, work and study habits, and the ability to get along with other children.
Findings: The kindergarten children did "decidedly better" than non-kindergarten children in progress in content subjects and in the ability to adjust to school conditions.

Morrison, J. Cayce — "The Influence of Kindergarten on Age-Grade Progress of Pupils in New York's Elementary Schools", Washington, D.C.: Am. Ed. Res. Ass'n. '37

Comparison of progress of 2334 children who had kindergarten experience at age five with 1475 children who had entered first grade at age five with no kindergarten experience.
Findings: (1) Normal or rapid progress in school made by 56% of those with kindergarten experience; 28% of those who did not. (2) Over a six year period, 32% of the first grade group and 12% of the kindergarten group were retarded two or more years.
Further study of 13,370 New York children in regard to retardation.
Findings: Retardation beyond first grade much greater for children beginning in grade one than for those who had kindergarten experience.

Nicholson, Ertie Lou — "The Relative Social Development of Children with Preschool Background as Opposed to Those Who Lack Such Experience", Unpublished Master's Thesis, Denton: North Texas State College, '57

Study of 402 children in grades one through six, half of whom had early school experience and half of whom had not. Compared for two variables: social acceptance and social adjustment. (Using sociometric choices and teacher ratings.)
Findings: No evidence that, as a group, children who have attended kindergarten and/or nursery school have any advantage in personal-social behavior over those children who have had no such experience.

Peters, W. J. — "The Progress of Kindergarten Pupils in Elementary Grades", J. Ed. Res. 7:117-126, '23

Study of progress of children with kindergarten experience throughout elementary school.
Findings: Children with kindergarten experience are generally more advanced.

Phillips, Georgia J. — "Kindergarten Training as a Factor in Social Adjustment of a Selected Group of Young Children", Unpublished Master's Thesis. Portalas: Eastern New Mexico Univ., '53

Matched 80 pairs of first-grade children with and without kindergarten experience on factors of sex, age, place of residence, parent occupational status, I.Q. and living with parents. Used California Test of Personality to compare the two groups on total adjustment, self-adjustment and 12 subfactors.
Findings: No discernible differences in any of the categories.

Risser, Faye & Elder, Harry E. "The Relation Between Kindergarten Training and Success in Elementary School", El. Sch. J. 28:286-8, '27

Comparison of 130 children who had kindergarten experience with 163 children without such experience. Study covered first five grades of elementary school.
Findings: (1) The children with kindergarten experience were superior in reading ability. (2) Success in reading in each of the first five elementary grades was more closely related to kindergarten training than was sucess in penmanship and arithmetic. (3) Kindergarten attendance increased the child's chances for success in all efforts requiring the ability to read.

Trusal, Maurice E. "The Effect of Kindergarten Experience on Social Readiness and Total Readiness for First Grade; and the Effect of Kindergarten Experience upon First Grade Achievement in Reading and Numbers in Williamsport, Penn. Public Schools", Doctor's Thesis, Penn. State Univ., '55

Findings: "Weight of evidence seems slightly to favor kindergarten experience with regard to achievement in first grade, to quality of parent-school relations and to first-grade teachers' opinions of physical, social and emotional adjustment and readiness for learning" -- from Encyclopedia of Educational Research.

B. As Factor in Prediction of Reading Success

Lee, J. Murray & others "Measuring Reading Readiness", El. Sch. J. 34:656-66, May '34

Comparison of scores on Lee-Clark Reading Readiness Tests for children with kindergarten experience and those without.
Findings: Test scores for children with kindergarten experience predict more accurately their ability to learn to read than do the scores of children without kindergarten experience.

Morgan, Elmer F. "Efficiency of Two Tests in Differentiating Potentially Low from Average and High First Grade Achievers", J. Ed. Res. 53: 300-305, '60

A study of kindergarten teachers' ability to estimate achievement placement of first grade children.
Findings: With in-service training, kindergarten teachers can suggest achievement placement of first grade children with reasonable competence.

Pratt, W. E. "A Study of the Difference in the Prediction of Reading Success of Kindergarten and Non-Kindergarten Children", J. Ed. Res. 42:525-533, '49

Findings: (1) Pupils with kindergarten experience were found to have significant superiority over non-kindergarten group in tests of reading readiness. (2) Kindergarten children found to be far superior to non-kindergarten children in reading achievement at end of first grade (as measured by Gates Primary Reading Test.)

C. As Factor in Readin. Achievement

Fast, Irene "Kindergarten Training and Grade I Reading", J. Ed. Psychol. 48:52-57, '57

Study of the effect of kindergarten training made possible because children with Nov. and Dec. birthdays were excluded from kindergarten one year but allowed to attend first grade the next year because of a policy change.
Findings: Kindergarten trained children were found to rank significantly higher in first grade on all reading tests.
Note: Investigator considered it significant that no formal reading was taught in the kindergarten; major emphasis was on development of social skills, ability to work independently and in groups and the acquisition of verbal and motor skills.

Gard, W. L. "The Influence of Kindergarten on Achievement in Reading", Ed. Res. Bulletin 3:135-138, '24

This investigation concerned itself with reading achievement only.
Findings: General tendency of superiority in reading achievement of kindergarten children over non-kindergarten children.

Goetch, Edward W. "The Kindergarten A Factor in Elementary School Achievement and Progress", Univ. of Iowa Studies in Ed. Vol. III, No. 4, '26

Findings: Reading scores and reading ages of children who had attended kindergarten were higher than those who had not.

Pratt, W. E. "A Study of the Differences in the Prediction of Reading Success of Kindergarten Children and Non-Kindergarten Children", J. Ed. Res. 42:525-533, '49

See I-B Above

Teegarden, Lorene — "The Kindergarten and Reading Reversals", Childh. Ed. 9:82-83, '32

Compared progress in reading in first grade on part of children in industrial, middle class and residential districts who had received kindergarten training with those who had not.
Findings: (1) 70% of kindergarten-trained children made satisfactory progress in reading as contrasted with 56% of those without. (2) Kindergarten-trained group also showed less tendency to reverse and confuse letters.

## II. ENTRANCE AGE AND CLASS SIZE AS FACTORS IN KINDERGARTEN EDUCATION

### A. Entrance Age

Bigelow, Elizabeth — "School Progress of Underage Children", El. Sch. J. XXXV:186-192, Nov. '34

Study involving one group of 88 children who entered first grade before 6 years of age and another group of 39 children entering between 6 years and 6 years 4 months of age. IQ used in most cases was the average of two administrations of the Kuhlmann-Anderson Intelligence Tests given in first and fourth grades. Doubtful cases were checked or retested by psychologists. A period of four years was covered in study.
Findings: (1) Of 44 children entering first grade before 6 years of age and with IQ below 110, only 6 made satisfactory records in fourth grade and 33 had repeated at some time during first four grades. (2) Of 44 children below six years of age at entrance but with IQ of 110 or above, 33 were doing satisfactory work in fourth grade and only 5 had repeated. (3) Of 88 children who entered school below age 6, 43 (49%) were known to teachers and principals as unadjusted in some way. Among older group of 39, there were 7 cases of maladjustment (18%).

Birch, Jack W. — "Early School Admission for Mentally Advanced Children", Excep. Child. 21: 84-87, Dec. '54

Study of progress of group of children underaged for school entrance (4 years 7 months to 5 years 4 months) who were considered good risks. Study included observation by 116 teachers from first to third grade.
Findings: They were found to make satisfactory progress in all areas: social, emotional, physical and academic.

Cone, H. R. — "Brookline Admits Them Early", Nations Sch. 55:46-47, Mar. '55

Study in system where underaged children were accepted in grade one when mental age was six.
Findings: Academic records found to be superior with marks indicating good achievement.

Gaskill, A. R. & Fox, W. C. "How Useful Are Psychological Tests for Screening Underage School Beginners?", J. Ed. Res. 57:333-336, Feb. '64

Tests conducted in community where children who will be five by Dec. 1 may enter kindergarten, but if not five by Sept. 1 parents are asked to have children tested even though tests are not binding (Pintner-Cunningham Primary Test used). The study compared the subsequent academic achievement of children who "failed" test (cutting score of 20 on Pintner-Cunningham was used. M.A. = 5 years 2 months) but entered school. Number included in study was 23 children still in same school system in fifth grade.
Findings (sample considered too small to make generalizations): (1) Delay seems to be contra-indicated for girls. (2) Academic achievement difference between delay and non-delay groups not significant. "This does not rule out important developmental differences." (3) Indications of a cumulative unfavorable impact on academic progress of boys in non-delay group.

Hamalainen, Arthur E. "Kindergarten-Primary Entrance Age in Relation to Later School Adjustment", El. Sch. J. 52:406-11, Mar. '52

Study of 4,000 children to determine effect of school entrance age policies. Factors considered included home life, play experiences, experience away from home and others.
Findings: (1) 24% of children entering school at 4 years 9 months were found to have difficulty while only 6% of normal aged children had similar problems. (2) Underaged children had more difficulty than normal aged children in all areas except the scholastic.

Hobson, James R. "Scholastic Standing and Activity Participation of Underage High School Pupils Originally Admitted to Kindergarten on the Basis of Physical and Psychological Examinations", News Letter, Sch. Psychologists of the Am. Psychol. Ass'n., Sept. '56

Study in the Brookline, Mass. public schools where for 25 years children younger than 4 years 9 months were admitted if a minimum mental age of 5 years (5.2 since 1944) had been determined by individual psychological and medical examination. 550 under-age admittees were compared with 3,891 others on several criteria including graduation with honors, election to an undergraduate honor society eligibility for which includes participation in extra-curricular activities.
Findings: (1) Graduation with honors criterion: under-age boys exceeded others with better than two to one ratio; under-age girls exceeded others about three to five. (2) Election to honorary society: 12.95% of under-age boys as compared to 5.85% of others; 18.71% of under-age girls as compared with 8.68% of others.
Conclusion: "Moderately early school admission for bright children according to careful criteria is an advantage to the bright child, at least in the Brookline situation."

Ilg, Frances L; Ames Louise B.; & Apell, Richard J. — "School Readiness as Evaluated by Gesell Developmental, Visual and Projective Tests", Genetic Psychology Monographs, '63

Three-year study in public school in Weston, Conn. supported clinical finding that if children enter school on basis of birthday age alone, a very high proportion will be entered before ready and will thus be over-placed when they start school and in the years that follow.
Findings: (1) In kindergarten group of 69 (followed over three-year period) 58% consistently ready for grade in which age placed them; 30% questionably ready; 12% unready. (2) In first grade of 22, 59% consistently ready; 32% questionable; 9% unready. (3) In second grade of 29, 34.5% consistently ready, 34.5% questionable; 31% unready.
Recommendations: So long as calendar age continues to be chief criterion, child should be fully five by September 1st for kindergarten, fully six for first grade. Would like to see boys fully 5½ for kindergarten and 6½ for first grade.

Illinois Association for Childhood Education — "The Relationship of Entrance Age to Pupil Progress", (Mimeographed, 1960), Childh. Ed. 40:384-5, Mar. '64

Academic achievement (reading), retardation rate and emotional adjustment were factors studied. Comparison made between youngest group (Sept., Oct. and Nov. birthdays) and oldest group (Jan., Feb., Mar. birthdays).
Findings: (1) Success in reading seems to be positively associated with older entrance age. (2) Younger children more likely to experience retardation in school progress. (3) Analysis of emotional adjustment yielded results not decisive enough to be of high significance. However, in all cases the percentage of students judged to be poorly adjusted was highest in the youngest group. (4) Differences between adjustment of boys and girls highly significant. Boys judged less well adjusted at all levels.

Mawhinney, Paul E. — "We Gave Up On Early Entrance", Mich. Ed. J., p. 5, May '64

Report of a 1961 pupil personnel survey of 386 students who, under a 14-year policy of the Grosse Pointe Board of Education, had been tested and approved for early entrance in kindergarten (having fifth birthday before end of January). Records studied, teachers and counselors polled for evaluation of social and emotional adjustment, demonstration of leadership and academic status.
Findings: (1) 30.6% of early entrants considered to be poorly adjusted. (2) 4.6% judged to be outstanding leaders, while 74.4% considered to be entirely lacking in leadership. (3) 24.4% were superior academically while 25.3% were either below average or had repeated a grade.
Note: Early entrance policy abandoned because of these findings and other findings related to reaction of parents whose children were not approved for early entrance and the expense of the testing program.

Weiss, Rosalee G. — "The Validity of Early Entrance into Kindergarten", J. Ed. Res. 56:53-54, Sept. '62

A comparison of the achievement and adjustment of 35 selected early-age children with 161 normal-age children with whom they had been matched as to IQ, personality adjustment and sex. Matching done by use of California Test of Mental Maturity and California Test of Personality (individually administered.) Comparison made at end of year using California Test of Personality, a sociometric test and the Teacher Rating Scale.
Findings: (1) "When placed in a regular kindergarten class, the early age children of above-average IQ may be expected to achieve and adjust approximately at level of class average. (2) While the early-age children achieve and adjust better than normal-age children of below-average IQ, they may be expected to achieve below the level of children of comparable IQ who enter kindergarten as the oldest group."

B. Class Size

McConkie, Gwen W. & Hughes, Marie M. — "Quality of Classroom Living Related to Size of Kindergarten Groups", Childh. Ed. 32:428-32, '56

Study of behaviors and activities in two groups, one of 37, the other 26, taught by same teacher.
Findings:
Aggression:
35% of large group - 4 or more acts of aggression recorded
15% of smaller group - 4 or more acts of aggression recorded
Conversation:
Very difficult with large group (even when divided into smaller groups)
Creative writing:
Very difficult with large group - long waits for individuals to have things taken down by teacher.
Child-teacher contacts:
20% of large group - no personal contact
4% of smaller group - no personal contact
23% of large group - 4 or more recorded personal contacts
65% of smaller group - 4 or more recorded personal contacts
Inquiry (teacher asking children):
70% of large group - no such opportunity
26% of smaller group - no such opportunity
Questions answered by teacher:
43% of large group - no questions answered
13% of smaller group - no questions answered
Summary: A smaller group means that "a teacher can listen and talk with children in a smaller group. It means that more children can have the satisfying experience of sharing something they value with the teacher."

Taylor, Christian D. "The Effect of Training on Reading Readiness", Studies in Reading, Vol. 2, Univ. of London, '50

See III C-3, p. 21
Note: Average class size in Scotland as indicated by Taylor is 19.
Implication: "The younger the pupils the smaller the class must be if reading is to be successfully taught" (Jack A. Holmes, Challenge and Experiment in Reading, IRA Conf. Proceedings, Vol. 7, 1962).
For similar implication see: Appleton, Edith. "Kindergarteners Pace Themselves in Reading" II

## III. RESEARCH ON BEGINNING READING WITH IMPLICATION FOR KINDERGARTEN EDUCATION

### A. Age of Beginning Reading

Brzeinski, Joseph E. "Reading in the Kindergarten", Teaching Young Children to Read, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '64

Interim report on a Denver, Colo. experiment designed to test the value of reading instruction in the kindergarten involving 4,000 pupils since 1960. 61 classes in pilot groups who received instruction in the beginning reading activities for 20 minutes per day. 61 classes in control groups followed the regular kindergarten program. Upon entry into first grade, the pilot and control groups were divided into two groups, making four first grade groups:

Group I - Regular program in kindergarten
Regular program in first grade and later grades
Group II - Regular program in kindergarten
Adjusted program in first and later grades*
Group III - Pilot program in kindergarten
Regular program in first and later grades
Group IV - Pilot program in kindergarten
Adjusted program in first and later grades

* Adjusted program had two characteristics: modification to continue use of pilot technique (oral-visual) with adopted basal readers, and provision for their use at an accelerated pace.
Findings: Results at end of 2 years of study appear to establish an advantage for children who had an opportunity to learn elements of beginning reading in kindergarten. Use of context and knowledge of letter-names, sounds and forms seemed to help children progress successfully when they began to read in books.

Durkin, Dolores

"Children Who Read Before First Grade", Teaching Young Children to Read, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '64 also, Read. Teach. 14:163-6, Jan. '61; "Children Who Learned to Read at Home", El. Sch. J. 62: 15-18, Oct. '61; "An Earlier Start in Reading?", El. Sch. J. LXIII:146-51, Dec. '61

Longitudinal study of 49 children (from 5,103 tested) who had learned to read before entering school. Home background and personality characteristics were factors given especial attention.
Findings: Testing at end of a four-year period showed these children at end of grade 4 with reading range of 4.8 to 11.2 with a median grade level of 6.7.

Durkin, Dolores

"Children Who Read Before Grade 1: A Second Study", El. Sch. J. 64:143-148, Dec. '63

A second study to examine pre-first grade life of non-early readers as well as that of early readers, and to compare over a period of time the reading achievement of early readers with that of equally bright non-early readers.
This is an interim report at end of first year.
First-year findings:

(1) Experimental group (early readers) more advanced at end of first year than non-early readers.
(2) Data re family background:
   - More parents of early readers than of non-early readers were foreign born.
   - Educational level of mothers of early-readers higher than that of mothers of non-early readers; opposite true of fathers.
   - Chronological age of groups same but parents indicated that early readers walked and talked at earlier ages.
   - Early readers tended to come from smaller families.
   - Early readers reported to spend less time watching TV, but gained more; influence of commercials on child's interest in written word emphasized.
   - Early readers more content with quiet activities.
   - Parental reading: all parents of early readers and 22 (out of 30) of non-early readers read to children; evidence of difference in quality (including discussion, questions, etc.)
   - Parental attitude about parental help with reading: parents of early readers felt they should help; others felt that they shouldn't.

Hughes, Bryon O. & Olson, Willard C. — "The Growth and Achievement of Late-Starting Boys and Girls", Univ. of Mich., Inter-Institutional Seminar in Child Dev., '60. Reported in Research in Primary Reading, Washington, D.C.: U.S. Dept. of Health, Ed., and Welfare, Office of Ed., '63

Study of 44 boys and 33 girls attending the Michigan University School from grade one at least through grade six who have an age of beginning reading at or later than 96 months of age. Average IQ of late-starting boys was 108.1 and of girls, 113.8.
Findings: (1) Boys significantly faster than girls in rate of achievement subsequent to beginning in reading, spelling and educational ages. (2) Late-starting boys and girls in University School eventually equal and exceed standards of age and potential. (3) Late-starting children of this population were significantly less mature physically than non-late starting children. Age of beginning achievement and level of achievement at any specified time co-vary in direct proportion to variation in physical maturation.

Kiester, B. V. — "Reading Skills Acquired by Five-year-old Children", El. Sch. J. 41:587-96, '41

Study of five-year-olds attending first grade in a system where this is normal practice.
Results: Normal progress during first year, but loss of gain during first summer.
Findings: (1) It is possible for children who enter grade one before age of 6 to make normal progress in reading during first year. (2) However, skills attained lack permanence, tend to disappear during summer between grades one and two. (3) The loss is not made up and children tend to remain retarded to same degree as at beginning of grade two. (4) Intelligence tests and reading readiness tests have less prognostic value for children under 6 than for older children.

Moore, O. K. — "Tis Time He Should Begin to Read", Carnegie Corp. of N.Y. Quarterly, Vol. IX, No. 2:1-3, '61
"Early Reading and Writing", Part 1: Skills; Part 2: Teaching Methods; Part 3: Development (Motion Pictures), Guilford, Conn.: Basic Ed., Inc., '60

Reports on a project demonstrating the effect of reading and writing instruction using an autotelic approach with an electric typewriter and tachistoscopically presented words. The project began with 35 children, aged two to five, and has been extended to include 100 children, aged two to six. One of the later aims of the project is "to determine whether the experimental techniques that have been worked out to teach pre-schoolers to read, write, type and compose can be incorporated into a nursery school program and developed into a suitable curriculum for the primary grades."
Findings: Pre-school children of a variety of intellectual levels can learn to read, write, compose and take dictation. "Children as young as 2 years, 7 months have been able to read at first grade level."

Taylor, Christian D. "The Effect of Training on Reading Readiness"

See III C-3, p. 21

Williams, Estelle M. "The Teaching of Reading in First Grade"

See III C-3, p. 21

B. Reading Activities in Kindergarten

Appleton, Edith "Kindergarteners Pace Themselves in Reading", El. Sch. J. 64:248-252, Feb. '64

A project at the University Elementary School of the University of California at Los Angeles conducted during the 1962 summer school session with 26 children between ages of 4.6 and 6.6 with IQ's ranging from 98 to 149 with median of 117.
Two rooms provided, one a standard kindergarten room, the other a "reading room"; both rooms opening on a well-equipped outdoor play area. Two teachers collaborated on over-all planning and evaluation with one being responsible for the regular kindergarten room and the play area, the other responsible for the "reading room". During the first few days all children worked in the reading room in groups of four or five; then were given freedom to choose and to move freely from one area to another.
Findings: (1) Free to choose, most of children chose to take part in reading program; only three of the 26 did not. (2) All children made progress in reading ability as determined by Survey of Primary Reading Development tests. (3) A few children read nine beginning books in six weeks. (4) The regular kindergarten program was maintained intact.

Austin, Mary C. & Morrison, Coleman The First R - Harvard Report on Reading in Elem. Sch. N.Y.: Macmillan Co., '63

Report of a study of reading instruction policies and practices in elementary schools. Included questionnaire survey of all school systems in cities and counties where the population exceeded 10,000 and interviews with administrative officers and teachers and observations in classrooms in a representative sample of school systems.
One question in survey concerned itself with the number of systems whose policy it is to begin reading instruction before first grade.
Findings: (1) Out of 795 replies to questionnaire, 582 (73.2%) of systems operate kindergartens. (2) Of the 582, 26.8% teach reading to at least some of the children: 156 described their practice as one of providing "a planned sequential approach in reading" or a "formal approach"; 426 described their practice as "an informal or incidental approach sometimes extending beyond reading readiness."

Blakely, W. Paul &
Shadle, Erma M.

"A Study of Two Readiness for Reading Programs in Kindergarten", El. Engl. 38:502-505, Nov., '61

Study of two groups (28 each) in suburban school in St. Louis County, Mo. (year of 1959-60) matched as to age, taught by same teacher in same classroom in morning and afternoon sessions. Evaluated prior to experiment with Metropolitan Readiness Test, form R and re-evaluated in May with Metropolitan Readiness Test, form S and also New Basic Reading Test accompanying WE READ PICTURES (readiness book used). Experimental group had an experience program based on units of activity; control group used WE READ PICTURES.
Limitations: small group, one school, measures of readiness may not predict subsequent achievement, teacher biased in favor of experimental program.
Findings: Experience-activity approach resulted in equal readiness in girls; resulted in significantly greater readiness in boys.

Collins, Mary L.

"Determining the Relative Efficiency of a Particular Reading Readiness Workbook and a Teacher Developed Program in Promoting Reading Readiness", Unpublished M.A. Thesis, De Paul Univ., '60. Reported in Research in Reading at the Primary Level, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '63

Study to determine whether informal presentation of readiness material or use of Red Book, a reading readiness workbook, is better at kindergarten level. Twenty-seven kindergarten children were paired on basis of IQ, drive, socioeconomic status and emotional stability of pupils and their homes. Tested with Scholastic Mental Ability Tests and Lee-Clark Reading Readiness Test.
Findings: The teacher-planned readiness program and use of Red Book resulted in no significant differences.

Mayne, Lucille

"An Individual Study of the Reading Acceleration of Two Kindergarten Children", El. Engl., April '63

Study conducted by a kindergarten teacher in Hartford, Wis. Two children observed to be reading at Christmas time. On basis of two tests, boy's IQ placed at 139, girl's at 140.
Two children continued in kindergarten with additional 45 minutes a day for reading instruction (Scott Foresman), number work, manuscript and a small amount of spelling. Sent to second grade at end of year with careful observation conducted in regard to social and emotional adjustment.
Findings: Two children with advanced mental age who were ready to move ahead academically and were permitted to do so seemed to make good social and emotional adjustment. Such provision for individual difference required the approval and support of parents, teachers and administrators involved.

Ploghoff, M. H. "Do Reading Readiness Workbooks Promote Readiness?", El. Engl. Vol. 36:424-6, Oct. '59

Comparison of two groups: one group of 13 girls and 15 boys used readiness workbooks during last nine weeks of kindergarten; another group of 15 girls and 12 boys used no workbooks. Readiness test given both groups upon entrance into first grade.
Findings: "That workbooks did not contribute to the child's reading readiness as measured on a standardized test."

Sheldon, William D. "Research Related to Teaching Kindergarten Children To Read", Reading in the Kindergarten??, Washington 16, D.C.: A.C.E.I., '62
"Teaching the Very Young to Read", The Read. Teach., 16:163-169, Dec. '62

Two summaries (similar in studies covered and conclusions drawn) of recent research related to teaching young children to read with implications drawn for place of reading instruction in the kindergarten curriculum.
Findings: "From the research which is pertinent, the studies and observations of five-year-olds in a learning situation, and the evidence of the later effect of early learning, there seems to be little or no justification for introducing reading into the curriculum at the kindergarten or five-year-old stage." Rather what seems indicated is "concept development and listening and speaking development in a comparatively unstructured environment."

Sutton, Marjorie Hunt "Listen to the Little Ones", El. Sch. J. 64:297-300, Mar. '64

Report of a project of two kindergarten teachers at Anthony School, Muncie, Ind. designed to provide for individual differences in readiness for beginning reading. Apparently no group instruction was attempted; easy-to-read books were made available and children's questions answered.
Findings: Out of 134 children, 46 achieved a reading level of 1.3. About one half of total group showed no continuing interest.

C. Factors in Reading:

1. Experience and informational background

Almy, Millie — "Children's Experiences Prior to First Grade and Success in Beginning Reading", N.Y.: Bureau of Pub., T.C., Columbia Univ., '49

A study of 106 children in first grades in three schools in Elmont, N.Y. in an attempt to find out from parents what had been the children's pre-school experiences in relation to reading and to find out from children how they appraised their own reading ability and their concepts of what learning to read involves.
Findings: (1) A significant, positive relationship between success in beginning reading and responses to opportunities for reading prior to first grade. (2) Some of the factors contributing to the relationship are: looking at books and magazines, being read to, interest in words, letters, numbers. (3) Most children have had some form of reading instruction at home before entering first grade. (4) No significant relationship found between beginning reading success and mental age or occupational status.

Hilliard, George H. & Troxell, Eleanor — "Informational Background as a Factor in Reading Readiness and Reading Progress", El. Sch. J. 38:255-263, '37

A study of two groups (kindergarten through Grade II) classified as "rich-background" group and "meager-background" group - based on experience with travel, communication media and reading materials.
Findings: "Rich-background" group made more rapid strides than other group, being 6 months ahead of them and 5 months ahead of grade standard at end of Grade II. "A more significant generalization to be arrived at is the superiority of the 'rich-background' group in the more complex abilities of paragraph and sentence meaning."

Waters, Doris — "Pre-Reading Experiences", Ed. 54:308-12, '34

Study made of basal reading material to be used in first grade with attention given experiences which might be necessary to understand content of material. Children checked by means of individual interview to determine their lacks in areas frequently covered in readers: "fairies, toys, circus, etc." Concrete experiences were provided in areas where children showed greatest lacks.
Findings: Children given concrete experiences in areas of inexperience made more rapid progress in reading in first grade than did children in a control group.

2. Mental Age

Gates, Arthur I. "The Necessary Mental Age for Beginning Reading", El. Sch. J. 37:497-508, '37

Summary of findings from numerous studies of relation of mental age to beginning reading.
Findings: (1) "Statements concerning necessary mental age at which a pupil can learn to read are essentially meaningless." (Too many other factors involved.) (2) "Most significant fact is that of the correlation between mental age and reading achievement being highest in classes where the best instruction was done." (3) Data seems to indicate that it is possible to organize materials and methods to teach children to read at a mental age of 5.0 or higher, they do not imply that it is desirable to do so.

Morphett, Mable V. & Washburne, Carleton "When Should Children Begin to Read?", El. Sch. J. 31:496-503, '31

Compared progress of first grade children of different chronological and mental ages in vocabulary mastery, oral reading and general reading progress.
Findings: (1) A mental age of 6.5 is optimum time to begin reading, although some children with mental ages between 6 and 6.5 making satisfactory progress. (2) By postponing teaching until children have mental age of 6.5, teachers can greatly decrease the chances of failure and discouragement and can increase teaching efficiency.

3. Readiness

Boney, C. Dewitt & Agnew, Kate "Periods of Awakening or Reading Readiness", El. Engl. Review 14:183-87, '37

Study of a group of children who had gone through the primary grades. Purpose to secure facts for making program that will more nearly fit the response that some slow children make to reading.
Findings: Two attributes of readiness: (1) Interest enough on part of child to turn to reading of own volition; (2) Mental powers of retaining word forms with a degree of effort not too discouraging.
Summarizing comments: "No data in this study to support the contention that children cannot read before this period (of awakening) is reached.... But, it would seem that until a child had reading readiness, the learning is laborious, and so being, there is danger of building aversion for the skill."

Brazziel, W. F. & Terrell, M.

"An Experiment in Development of Readiness in Culturally Disadvantaged Group of First Grade Children", J. of Negro Ed. 31 No. 1:4-7, '62. Also under title "For First-Graders: A Good Start in School", El. Sch. J. 62:352-355, April, '62. Reported in Research in Reading Readiness, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed.

Study of the effect of a guidance approach to registration and school induction and an intensified teacher-parent approach to the development of reading and number readiness in a group of disadvantaged first grade children where no kindergarten experience was available. The experimental group was a group of 26 children; control groups were three groups of 25, 21 and 20 children.
Findings: Experimental group scored at the 50th percentile (national average) on readiness tests given at end of readiness period; control group scored at 13.14 and at 16th percentiles.

Cappa, Dan

"Kindergarten Children's Spontaneous Responses to Storybooks Read by Teachers", J. Ed. Res. 52:95, '58

2,500 kindergarten children in California were observed in response to reading by teacher.
Findings: (1) Most noted response was desire to look at book read. (2) Approximately one third of responses were verbal; others observed as overt actions.
Summarizing statement: "The level of abstraction in the response could well provide kindergarten teachers with clues to readiness for academic school activities."

Gates, Arthur I. & Bond, Guy L.

"Reading Readiness: A Study of Factors Determining Success and Failure in Beginning Reading", N.Y.: T.C. Record 37: 695, '36

Factors studied include: mental age, readiness tests, hearing loss, vision tests, tests on hand and eye dominance, motor coordination and speech defects, previous instruction given at home or in kindergarten.
Findings: (1) Low correlations in all instances. (2) Previous instruction factor ranking slightly higher in correlation than mental age.
Summary: (1) Reading is determined by combination of factors that differ in individual cases. (2) Recognition and adjustment to individual limitations and needs during beginning reading more important than changing time of beginning. (3) Optimum time for beginning reading does not depend entirely on the nature of the child, but also on the nature of the reading program.

Haynes, M. L. "The Effect of Omitting Workbook Type Reading Readiness Exercises on Reading Achievement in First Grade", Unpublished Dr. of Ed. Thesis, Peabody, '59

Findings: "No significant differences among those who had and those who had not used a readiness workbook."

Milner, Esther "A Study of the Relationship Between Reading Readiness in Grade One School Children and Patterns of Parent-child Interactions", Child. Develop. 22:95-112, '51

Findings: Two lacks of lower-class child (in most cases, also a low-scorer) (1) Warm, positive family atmosphere; (2) Extensive opportunity to interact verbally with adults who are of high personal value to child and who possess adequate speech patterns.
Summarizing statements: "In order to help ...it would seem that the first step of school ought to 'fill in' these experiential gaps." Preferable approach is publicly supported nursery schools and kindergartens among lower-class population in particular. "Such schools could start to fill in these emotional, motivational and verbal gaps at an early enough age for results to show by age six."

Morrison, Ida E. "The Relation of Reading Readiness to Certain Language Factors", Challenge and Experiment in Reading, J. Allen Figurel, ed. IRA Conf. Proceedings. Vol. 7, '62

Report of two studies to gain some idea of the importance of some language abilities in reading readiness.
First study: involved the relationship of children's maturity in the use of various types of sentence structure to their scores on the Lee Clark Reading Readiness Test. 83 kindergarten children in four kindergartens in a city school district, representing a variety of socio-economic levels. Almost ten percent of the children spoke another language in the home. Oral expression during sharing time was classified according to four levels of sentence usage and scored by three judges. These scores were used for a correlation with the reading readiness scores.
Findings: A relatively high correlation between children's level of usage in sentence structure and scores on reading readiness tests.
Second study: involved ability to retell a story as related to reading readiness score. 44 children from two of the four classes used in the first study were selected for this one.
Story of Peter Rabbit was used and judges' analysis to determine total number of incidents (33). Children's retelling recorded after having heard the story nine times, once immediately prior to re-telling.
Findings: An even higher correlation between ability to recall incidents in story and reading readiness scores.

Roche, Helen — "Junior Primary in the Van Dyke Level Plan", J. Ed. Res. 55:232-3, '62

Study based on assumption that a part of readiness was a mental, social and emotional maturity equivalent to that of the average 6 years 6 months child. Took place within a flexible organizational plan called the Level System, providing for Jr. Primary A and B between Kindergarten and First Grade.
Findings: (1) Children not ready for reading profit by being kept in a readiness situation until prepared for formal reading. (2) Moving children ahead into formal reading only after they succeed on the Jr. Primary Level does not delay their school progress.

Scott, Carrie M. — "An Evaluation of Training in Readiness Classes", El. Sch. J. 48:26-32, '47

A study conducted in the Planeview Schools, Wichita, Kan. to test the hypothesis that "a prolonged period of definite readiness training prepares a child to achieve more satisfactory results in scholastic fields, promotes better social development and instills more desirable attitudes than can be achieved in the ordinary school program." Two readiness classes organized at beginning of second semester (1946) were made up of: 1) children who had started first grade at beginning of year but had been unsuccessful in reading and 2) children from kindergarten who indicated superior readiness on tests and were nominated by teachers on basis of social maturity, emotional stability, adequate health and a chronological age of 5 years 5 months or over. Parental judgment and consent also obtained.
Instruction materials: teacher-made materials such as "beginning sound" charts and experience charts, commercially prepared charts, workbooks and readiness books. Some mature pupils started with preprimers. Regular kindergarten program followed in areas of art, music and physical education A year later growth of pupils taken from kindergarten was compared with that of pupils of equal ability who had remained in kindergarten or had not attended kindergarten.
Findings: (1) Wide variations in both groups, but wider among individuals in experimental group; (2) Pupils in experimental group received higher average scholastic marks for first semester in Grade I; ranked higher in desirable attitudes, habits and skills; were reading at higher levels than those in control group.

Sutton, Rachel S. — "A Study of Certain Factors Associated With Reading Readiness in Kindergarten", J. Ed. Res. 48:531-538, '55

A study to test the hypothesis that readiness for reading as measured by Metropolitan Readiness Tests does not depend to a high degree upon a single environmental condition, a personal trait or a combination of personal traits, or teacher ratings of pupil adjustment.
Findings: No evidence of significant relationship between readiness for reading as measured by Metropolitan Readiness Tests and any single factor described. Of interest were the following positive correlations: read stories at home .64; occupation of father .56; use of telephone .48; private instruction .46; independent play .36; education of parents .30.

Taylor, Christian D. "The Effect of Training on Reading Readiness", Studies in Reading, Vol. 2. Univ. of London, '50

Study of children in Scotland who enter at age five and begin to read shortly thereafter. Average class size is indicated as 19.
Findings: On Metropolitan Reading Test given to group of children in beginning of second year (mean chronological age - 6 years 3 months) reading age was equal to that of children of 7 years 5 months in this country.

Williams, Estelle M. "The Teaching of Reading in the First Grade", Unpublished M.Ed. Thesis, Univ. of So. Calif., '58. Reported in Research in Reading at the Primary Level. Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '63

Attempt to determine factors affecting reading readiness and most effective time for reading instruction to begin.
Findings: (1) Factors affecting reading readiness determined as emotional adjustment, auditory readiness, physical condition, mental age and formal preparation. (2) Best time to begin reading instruction placed at mental age of 6 years 6 months with readiness preparation including kindergarten and portion of first grade.

Wilson, Frank T. & others "Reading Progress in Kindergarten and Primary Grades", El. Sch. J. 38:442-449, '38

Four-year study at Horace Mann School including 4 and 5-year-old kindergartens, Grades I, II and III.
Findings: (1) Reading readiness is in reality reading progress with two aspects: skill or mechanics, and interest. (2) No inherent qualitative differences among these children explain differences in progress in reading. Varying abilities to see, hear and speak and varying mental ability or personality traits do not seem to be closely or critically related to progress in reading, as revealed by either the statistical or the case studies. (3) Differences in reading progress can be explained mainly in terms of learning. Mastery of letter symbols, both form and sound, seemed to stand out as of pre-eminent effectiveness in contributing to reading progress.

4. Visual Development

Eames, Thomas H. "Accommodation In School Children Aged Five, Six, Seven and Eight Years", Am. J. of Opthalmology, 51:1255-7, '61

An analysis of near-point accommodation adequacy of 899 young urban and suburban children with respect to visual maturity for school reading tasks.
Findings: Accommodation powers for early reading tasks were greater at these age levels than would be expected later, and were presumed to be ample insofar as this visual function is concerned.

Eames, Thomas H. "Comparison of Children of Premature and Full-Term Birth Who Fail in Reading", J. Ed. Res. 38:506-508, '45

Study of 155 children born prematurely or weighing 5.5 pounds or less at birth and a small group born during or later than tenth month as compared with 439 children born at full term.
Findings: At every subsequent age studied there was greater incidence of low vision among children born prematurely. Difference persisted through ninth year.

Leverett, Hollis M. "Vision Test Performance of School Children", Am. J. of Ophthalmology, 44:508-519, '57

Tested vision of some 6,000 elementary and secondary school pupils.
Findings: (1) Vision tends to deteriorate markedly from kindergarten through grade twelve. (2) It is possible that too early attempts to use the eyes in reading tends to produce myopia.

Park, G. E. & Burri, Clara "Eye Maturation and Reading Difficulties", J. Ed. Psychol. 34:535-546, '43

Study of the incidence of various visual factors from the prereading period through the eighth grade.
Findings: (1) Percentage of children with vision below 20-20 declines from slightly 50% in prereading and primary period to 20 to 25% in early elementary and junior high school period. (2) Good fusion increased from 54% in prereading period to 8[illegible]% in eighth grade. (3) Good stereopsis increases from 18% in prereaders to 75 and 80% in late elementary and junior high school. (4) Power to maintain binocular single vision improves in same period.
Conclusion: Probability that extra incidence of visual anomalies in cases of reading retardation have roots in factor related to tempo of maturation of individual.

5. Other

Meuhl, Siegmar — "The Effects of Visual Discrimination Pre-training on Learning to Read a Vocabulary List in Kindergarten Children", J. Ed. Psychol. 51:217-21, '60

37 kindergarten pupils involved in learning to read a vocabulary list as a result of matched pre-training in geometric form, different words or same words appearing on list.
Findings: (1) Group pre-trained on same words performed better. (2) No evidence of transfer from other pre-training. (3) "Single letters or details of these letters appeared to be basis of word matching."

Wattenberg, W. W. & Clifford, Clare — "Relation of Self-concepts to Beginning Achievement in Reading", Child Develop., Vol. 35, No. 2, June '64

Study of self-concept and of ego strength measures of kindergarten children in relation to progress in reading.
Findings: (1) Measures of self-concept and of ego strength proved significantly predictive of progress in reading but not significantly related to mental test score. (2) Two especially significant aspects of self-concept: a. Feelings of competence; b. Feelings of personal worth.

## IV. RECENT RESEARCH ON INTELLECTUAL DEVELOPMENT AND LEARNING WITH IMPLICATION FOR KINDERGARTEN

Almy, Millie — "Young Children's Thinking About Natural Phenomena", Interim Report to Horace Mann Lincoln Institute of School Expermentation", N.Y.: Columbia Univ., '60
Also "Wishful Thinking About Children's Thinking", T.C. Record, N.Y.: Columbia Univ., Feb. '61

Report on the exploratory phases of a normative and longitudinal study of young children's thinking about their physical world. Designed to examine the efficacy of the demonstration-interview as a technique for revealing children's conceptions about such presumably familiar aspects of their world as air, water, objects that float and those that sink, living and non-living things.
Findings: (1) Some insight into "explanations for some of the many discrepancies to be found among studies of children's thinking using the interview as a method, and between those studies and others based on observations of children at work and play." (2) Doubt raised as to investigator's "wishful belief that the child's words had the same meaning to him as they did to her and that his logic was basically no different from her own."

Almy, Millie

"Children's Thinking and the Teaching of Reading", Teaching Young Children to Read, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '64

A further reporting on the normative and longitudinal study of young children's thinking about their physical world being carried on in co-operation with elementary schools in Manhattan and Brooklyn. Based on certain theoretical formulations of Jean Piaget* with special attention given the thesis that a necessary condition for rational thought in math and physical science is the development of the ability to "conserve" (described as the ability to grasp the idea that a given amount or quantity is not changed by transformations in appearance.)
Tentative conclusions: (1) "The general trends described by Piaget are substantiated by the results". In middle-class school 10% of kindergarteners, 30% of first graders and 46% of second graders gave evidence of ability to conserve; in lower-class school, the percentages were 4, 7 and 22. (2) Relation of ability to conserve and reading ability indicated by the finding that children who "conserved" did significantly better in reading readiness tests than those who did not "conserve", Differences at second-grade level were not statistically significant.

Byers, Loretta

"The Interests of Space-age First Graders", El. Sch. J. 64:237-241, Feb. '64

An inventory of interests of 1,860 first grade children from recordings of 214 sharing periods. Fourteen states representing every region of the U.S. except Hawaii were included.
Findings: (1) Primary interests are the environment and events close to children. (2) Main interest is natural science, especially living things children can observe and touch. (3) Little interest in newer sciences or in space. For example, trips on jets do not compare with a two-wheel bike. (4) Little interest evidenced in cultures other than own or places and events at distance from home. Despite apparently rich travel experience, comments were so superficial as to raise question of their value. (5) Categories in order of importance: Science and nature (with living things at top, specifically pets); Possessions; Personal experiences; Family and home activities; Recreational activities; Books; Clothing; Events concerning friends and immediate community; Mass communication media (TV, radio, movies); Music.

*See page 30

Dawe, Helen C. "A Study of the Effect of an Educational Program Upon Language Development and Related Mental Functions in Young Children", J. Exp. Ed. XI:200-209, Dec. '42

A study involving a group of orphanage children with few language experiences in a program of special training in comprehension of words and concepts. The program, lasting about 50 hours, consisted of: (1) Training in understanding words and concepts; (2) Looking at and discussing pictures; (3) Listening to poems and stories; (4) Going on short excursions.
The group studied were eleven pairs of children, matched on basis of school group, sex, chronological age, mental age and IQ (Stanford Binet and Smith-Williams Voc. Test used).
Findings: (1) The experimental group had made significant progress (over that made by a control group) in vocabulary, information about home living and general science information. (2) Reading readiness of experimental group was superior to that of control group. (3) IQ had increased.

Deutsch, Martin Uncompleted research at the Institute for Developmental Studies, N.Y. Med. College referred to in: "Nursery Education: The Influence of Social Programming on Early Development", J. Nurs. Ed., Vol 18:191-197, April, '63; "The Disadvantaged Child and The Learning Process: Some Social, Psychological and Developmental Considerations", Paper prepared for Ford Foundation "Work Conf. on Curr. and Teaching in Depressed Urban Areas", Columbia Univ., '62

Reports on uncompleted experimentation in preschool programs (in cooperation with the NYC Board of Education) based on the assumption "that early intervention by well-structured programs will significantly reduce the attenuating influences of the socially marginal environment."
Findings: ("not considered conclusive enough to publish"): (1) Significant differences in auditory discrimination between lower-class and middle-class children in first grade. (2) At kindergarten level, many lower-class children have difficulty in making use of the adult as a "source of information, correction and reality testing involved in problem solving and the absorption of new knowledge." (3) Strong indication that "class differences in perceptual abilities and general environmental orientation decrease with chronological age, while language differences tend to increase."

Elkind, David "Children's Conceptions of Right and Left", J. of Genetic Psychol., 99: 269-278, '61

A study replicating earlier Piaget experiments.*
Findings: Indications are that a majority of children under the age of seven lack a differentiated concept of left-right.

* See page 30

Elkind, David & Scott, Lee — "Studies in Perceptual Development: I The Decentering of Perception", Child Develop. 33:619, Sept., '62

A study of the ability to perceive ambiguous pictures. 126 nursery school and elementary children were tested with a set of seven pictures and results were considered in relation to the developmental theory of Piaget* and the satiation theory of Kohler and Wallach.
Findings: (1) Success in perceiving ambiguous pictures increased significantly with age, with the articulation of the pictures and with IQ. (2) Piaget's theory concluded to give most consistent and economical account of results. (According to Piaget, perception is not an innately fixed mechanism for registering stimuli but a developing system which becomes increasingly adaptive with age.)

Hunt, J.V. — "How Children Develop Intellectually", Children, 11, No. 3, May-June, '64

A summary of recent studies which have focused on the "role of infantile experience in the development of intelligence and motivation" with particular emphasis on implications for further experiments "designed to provide corrective early experience to children and to feed back information on ways of counteracting cultural deprivation."
Findings: (1) While it is not yet possible to blueprint a program of preschool enrichment as an antidote for cultural deprivation, there is evidence that a program of enrichment can be made effective. (2) Such a program will also contribute to the intellectual development of all children. (3) Such programs will help to minimize those racial differences in school achievement which block racial integration.

Kolson, Clifford John — "The Vocabulary of Kindergarten Children", Unpub. Ed.D. Thesis, Univ. of Pittsburg, '60. Reported in Research in Reading at the Primary Level, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '63

Study of the words used by children during free play activities, in response to stimulation by pictures and questions, and in the home. 494 children from three states were involved in study; twelve percent were nonwhite and 48 percent were girls. Words recorded were compared with the International Kindergarten Union List.
Findings: (1) Kindergarten child's vocabulary consists of about 3,728 words with most significant change since publication of the I.K.U. List seeming to be in replacement of natural with mechanical vocabulary and in the elimination of "baby talk" and "animal" noises. (2) 80 percent of the vocabulary from the I.K.U. List is included in present list. (3) Children in schools in the study have 97 percent of the basal reading vocabulary used in schools' first-grade beginning reading books in speaking vocabulary.

* See page 30

Lewis, Alice Juanita — "An Inventory of the Auditory and Visual Discrimination Abilities of Beginning Kindergarten Children", Unpublished Ph.D. Thesis, State Univ. of Iowa, '59. Reported in Research in Reading at the Primary Level, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed. '63

192 beginning kindergarten children tested on 80 auditory and visual discrimination items in order to measure ability prior to instruction and to determine effect of chronological age, sex and socioeconomic status upon these skills.
Findings: Rhyming elements in words - children answered 14 or 20 items; beginning sounds in words - mean score of 8.9 of 20 items; likenesses and differences in geometric designs and pictures - mean score of 19.3 of 20 items; likenesses and differences in words and letters - mean score of 17.8 of 20 items. Chronological age and sex had no significant effect. Socioeconomic status had significant effect.

Loban, Walter D. — "The Language of Elementary School Children", Research Report No. 1, Champaign, Ill.: NCTE, '63

A study dealing with the characteristics of children's language, the development of language patterns and relationships between phases of language development such as listening and speaking, speaking and reading, oral language and writing. Attention is also given to the effectiveness of current practices in teacher motivation of language development.
Findings: (with implications for kindergarten) (1) For children included in study, "vocabularies and speaking habits are almost completely set by school age and that these children employ all the common sentence patterns identified as basic to the English language." (2) "The nature of the children's early exposure to language and the qualities of that language in their home and neighborhood determine to a considerable degree the extent and quality of all their subsequent language development. (3) Children who have the largest vocabularies and highest achievement in oral language in kindergarten exceed other children in reading ability throughout elementary school. (4) Boys of elementary school age are typically less proficient in oral language than girls.

MacKinnon, A.R. — "Explorations for Instructional Design in Early Reading Programs", Teaching Young Children to Read, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '64

Report on an incomplete study in Toronto, Canada, in which the speech and drawings of children from the age of 4 through age 5 have been explored. Method has consisted of recording children's verbalizations about their drawings.
Findings: (after 2 years) (1) Children's drawings represent a form of abstract thinking through which they explore, comprehend, manipulate, and control their mental world. (2) Increasing command of spoken language leads to increasing definiteness in the abstractions they employ in drawing. (2) Line, form and color are used in a functional way to create a mental world.

Montague, David O. "Arithmetic Concepts of Kindergarten Children in Contrasting Socioeconomic Areas", El. Sch. J. 64:393-397, April '64

Study of four kindergarten classes of 82 pupils in the San Francisco Bay area, 51 from low socioeconomic sections of the city and 31 from high socioeconomic sections. The Arithmetic Concepts Inventory for Kindergarten and Entering First Grade by Arden K. Ruddell was used in the seventh month of the kindergarten experience.
Findings: Significant difference in the mean scores of the two groups - low socioeconomic group: 15.35; high socioeconomic group: 24.16.

Robison, Helen F. "Learning Economic Concepts in the Kindergarten", Unpublished thesis, Columbia Univ., '63

Experiment designed to explore the possibility of adding significant content to the kindergarten curriculum and to apply some organizing principles for kindergarten content selection. Economic concepts selected for study because they are a discipline which can have meaning throughout life and offer opportunity for concrete experience close to child's life.
Findings: Kindergarten children can learn meaningful economic concepts. A wide variety of methods, materials, concrete experiences and sensory stimuli contribute to such learning.

Rosenblith, Judy F. "Learning by Imitation in Kindergarten Children", Child Develop. 30:69-80, Mar. '59

Study involving 120 kindergarten children from two public schools in a Boston suburb composed of middle and upper-middle class residents. Purpose to determine effectiveness of learning by imitation with these variables considered: (a) effectiveness of model as contrasted with no model, (b) effectiveness of sex of model and relation of model's sex to child's, (c) effectiveness of attention during entire period as contrasted to attention for first half, then withdrawn.
Findings: (1) In general, having a model is more effective than additional trials. (2) In general, male model more effective than female. (3) Boys showed more improvement with model. (4) Total-time attention more effective than withdrawal except in case of boys with male models.

Russell, Irene & Waugaman, Blanche "A Study of the Effects of Workbook Copy Experience on the Creative Concepts of Children", Research Bul., Kutztown, Pa: Eastern Arts Assoc., Vol. 3, No. 1, April '52

Findings: The quality of children's art work deteriorates as a result of experience in which they are given pictures to color, trace or copy.

Spodek, Bernard — "Developing Social Science Concepts in Kindergarten", Unpublished Thesis, Columbia Univ., '62

Experiment concerned with concept development in the area of map skills and dealing with remote time and distance ideas. Experiences organized around the subject of New York Harbor.
Findings: (1) Kindergarten children have a wide background of information even in areas not generally considered appropriate for young children. (2) Kindergarten children deal with ideas over a long period of time, returning again and again to clarify, practice and modify as new information is added. (3) Kindergarten children use a wide variety of material and experience in developing concepts and use play to clarify ideas. (4) Kindergarten children can begin to use the tools of the social scientist in learning about the world.

Stricklend, Ruth G. — "The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children", Bulletin of School of Ed., Ind. Univ., Vol. 38, No. 4, '62. Also reported in Teaching Young Children to Read, Washington, D.C.: U.S. Dept. of Health, Ed. and Welfare, Office of Ed., '64

Study analyzing the structure of children's language in first through sixth grade, comparing it with the structure of language in books used to teach reading and attempting to ascertain, at a selected grade level, the influence of any apparent differences on the quality of children's reading skill.
Findings: (with implications for kindergarten) (1) "Children enter school able to use language and to respond to it .... (They) bring to school the language of their environments." (2) "The symbols the children have learned are oral symbols and the patterns which constitute the flow of their speech are oral patterns."

Templin, Mildred — "Certain Language Skills in Children, Their Development and Relationship", Univ. of Minn., Institute of Child Welfare Monograph Series, No. 26, '57

A replication and extension of studies by McCarthy (1930) and Davis (1937) sampling preschool children's language, using size of vocabulary and sentence length as chief criteria for measuring linguistic maturity.
Findings: Preschool children are talking in significantly longer sentences and using larger vocabularies than twenty years ago.

Wann, Kenneth D.; Dorn, Miriam Selchen & Liddle, Elizabeth Ann — Fostering Intellectual Development in Young Children, N.Y.: TC, Columbia Univ. '62

Report of action research participated in by classroom teachers from five schools. "The concern of all participants was for a systematic appraisal of the ability of young children to understand and interpret their social and physical world and for experimentation with ways to improve the educational experiences of young children."
Findings: (1) Children are collectors of information and demonstrate a great range of knowledge. Also significant was the evidence of the great satisfaction experienced in having information and being able to use it. (2) Young children employ the essential elements of the process of concept formation: associating ideas, attempting to discover cause and effect relationships, classifying and generalizing about things in the environment. (3) Through study of children, teachers can enrich experiences and guide intellectual development.

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For detailed reports of Piaget's research in the area IV the following paperbacks are available:

Judgment and Reasoning in the Child, Paterson, N.J.: Littlefield, Adams and Co. '59
Play, Dreams and Imitation in Childhood, N.Y.: W.W. Norton and Co., '62
Psychology of Intelligence, Paterson, N.J.: Littlefield, Adams and Co., '63
The Child's Conception of Physical Causality, Paterson, N.J.: Littlefield, Adams and Co., '60
The Child's Conception of the World, Paterson, N.J.: Littlefield, Adams and Co., '60
The Language and Thought of the Child, Cleveland, Ohio: Meridian Bks, '62
The Moral Judgment of the Child, N.Y.: Collier Bks. '62
The Origins of Intelligence in Children, N.Y.: W.W. Norton and Co., '63
For a survey of Piaget's research:
Flavel, J.H., The Developmental Psychology of Jean Piaget, N.Y.: Van Nostrand Co., '63